The Georgian Group Guides

No 5

RENDER, STUCCO AND PLASTER

A Brief Guide to the History and Maintenance of Georgian Renders and Plasters

Cover Pictures (Clockwise From Top Left): John Nash's Park Crescent, London of 1812-22; Roughcast and (on the Right) Wrongly Exposed Rubble (*Rory Young*); Rusticated Stucco: Coade Keystone

Introduction

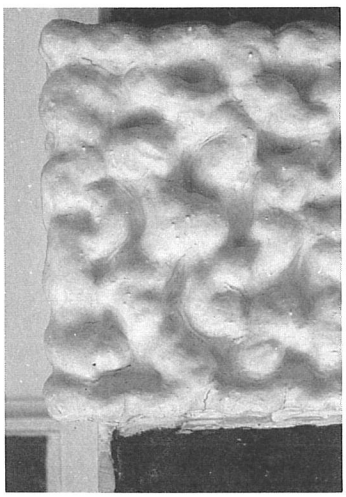
PLASTER, STUCCO and the whole family of internal and external renders is a subject about which there are many misconceptions. The term 'render' generally signifies durable plasters, applied over a variety of bases, which are designed to protect the wall from severe weather conditions, to act as a decorative covering or enhance the architectural qualities of the building, or simply to hide coarsely-executed masonry.

It is important to remember that the apparent failure of or damage to an area of render does not mean that all of the covering needs to be replaced, and it is extremely important to retain original plasterwork wherever possible. If it is still doing its job, whether as a protective layer or as an aesthetic adornment, *leave it alone.* Render should not be thought of merely as an unsympathetic method of covering up walling materials. It is a vital element in the construction, and in the aesthetic effect, of countless Georgian buildings.

Most importantly, remember that, if you do decide to make repairs, any substantial internal or external alteration to a listed building – or even in some cases those in a Conservation Area – requires Listed Building Consent from your local District or Borough Council before work is begun. Failure to comply with the listed building regulations can result in prosecution, so it is always best to check with the Conservation Officer of your local District or Borough Planning Department before starting.

A Brief History

FROM THE 16th CENTURY onwards naturally-occurring gypsum (calcium sulphate) was commonly used to make quick-setting plasters designed primarily for internal use – although it was also employed to obtain extremely decorative effects such as pargeting. The most common form of GYPSUM PLASTER is Plaster of Paris; this basic material was often mixed with animal hair, or possibly with straw or reeds, to make a more durable and more binding substance. The resultant plaster was then applied in three (or more) coats over laths – generally made from Red Baltic Fir, although inferior oak, beechwood and other woods could be employed. The plaster was, from the 19th century onwards, additionally strengthened by the provision of wire netting, stapled or tacked to joists – a technique patented in 1797. 'Martin's Cement', patented in 1834, was a branded gypsum plaster which used pearl ash and a small amount of sulphuric acid to produce a more unusual but tougher plaster.



Vermiculated Plaster Quoin of c. 1770

Inside the grander houses individual ornaments of gypsum plaster were executed in place. In the majority of homes, however, pre-moulded ornament, prefabricated in workshops and then fixed on site, was the rule. This was fixed onto the third coat by means of liquid slip, and sometimes re-pressed when in position to give greater definition. Straight cornices and dado rails were usually run using a specially-shaped tool, confusingly called a 'house'.

Many exotic variations of decorative gypsum plasterwork can still be found in Georgian houses. PAPIER-MACHE work and CARTON-PIERRE (pulped paper with glue and whiting), both of which were moulded under high pressure, were reasonably common. Less prevalent was SCAGLIOLA (pigmented plaster and marble chips cast in imitation of real marble) and MAREZZO MARBLE (a purely plaster version of scagliola), which provided marble substitutes for both grand and modest households – particularly in places where true marble was structurally impractical. There are still a few specialists who are able to repair

these unusual materials; contact your Conservation Officer to check if there is one near you. PARGETING and SGRAFFITO – respectively, raised or incised internal or external decorative work – became widely used in certain areas of the country, the former being particularly common on 17th century exteriors in East Anglia. GESSO was the technique by which a plaster or wood surface was covered with layers of a simple combination of linseed oil, whiting and size (glue), and then decorated – often with gilding.

External RENDER, a simple combination of lime and sand, had been used since the days of wattle-and-daub huts; the most commonly-used form of render during the Georgian period – STUCCO – was originated by the Romans. It is in essence simply an imitative material – like graining or marbling: repeated coats of lime render were applied to masonry to give the appearance of expensive dressed ashlar. Originally the Italians used the term 'stucco' to denote a mix of powdered marble and lime; in 18th century Britain, however, the term was used for any type of internal or external plasterwork. It was only towards the end of the century that it came specifically to signify *exterior* rendering of masonry to suggest fine stonework.

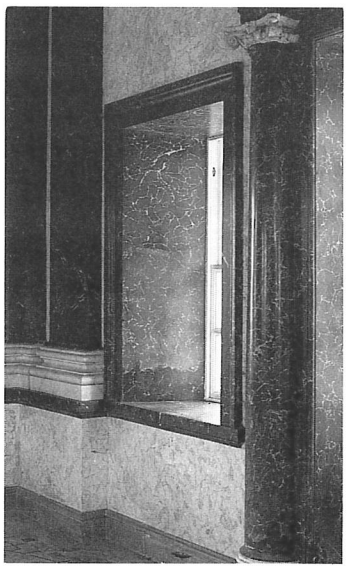
Stucco was first popularised in Britain by the Early Palladian architects of the 1720s, and became the hallmark of the Late Georgian terrace. From the 1770s onwards Coade Stone, a far more reliable and durable ceramic product than stucco render, began to supercede stucco for decorative elements such as figurative casts. Yet stucco was still widely used for individual and terrace housing by architects such as James Wyatt and, most famously, John Nash. By the 1840s, however, improved PORTLAND CEMENTS had been introduced, and the fashion for stucco was waning. Its demise was hastened by the inimical attitude of the new generation of Gothic Revival architects such as A.W.N. Pugin, who violently denounced stucco as a sham product of the debased classical age. As a result Georgian plaster and render was removed wholesale by the architects of the Gothic Revival.

Oil-based MASTICS were much used in the 18th and 19th centuries as an alternative to stucco. Generally applied in thin coats over masonry, or modelled to form external decorative details, their recipes varied substantially, but generally featured large amounts of limestone dust or sand mixed with lead or lead compounds and oil immediately before use. Surfaces would be primed with linseed oil before the mastic coat was applied. Mastics were enthusiastically taken up by the Adam brothers in the 1760s and 70s; Robert Adam made particular use of one of the many new patent formulas, Liardet's mastic – which first appeared in 1773 – at houses such as Kenwood House. However, mastics quickly proved unreliable – Adam himself was soon involved in a celebrated and protracted dispute with Liardet – and are rarely used today. If your building still retains coats of mastic, though, it is important to repair it with a render of similar strength and consistency. English Heritage can advise you how to proceed.

HARLING can be found all over Britain, but especially in Scotland and the northern counties. A thick top coat of render is combined with graded stones to give a rough finish with an extensive drying surface – a finish particularly useful in wetter climates.

ROMAN CEMENTS bear little relation to modern cements, but are in fact quick-setting renders based on hydraulic lime, made from limestone containing a good proportion of clay. This, when combined with water or reactive materials such as pulverised fuel ash, produces a quick-setting render, first

RUNNING A RENDER MOULDING (*SIMON GATEHOUSE/HARRY NEAL LTD*)



MAKING SCAGLIOLA IN THE STUDIO OF HAYLES AND HOWE . . . AND THE FINISHED PRODUCT INSTALLED IN THE GREAT HALL AT CASTLE HOWARD, YORKSHIRE (*BY KIND PERMISSION OF TRADITIONAL HOMES MAGAZINE, HAYLES AND HOWE LTD AND THE HON SIMON HOWARD*)

RENDER WRONGLY REMOVED: ABOVE, IN CIRENCESTER, REVEALING UNTIDY CIRCULAR PANEL AND RUBBLE WALLING; AND BELOW, IN MALMESBURY, WITH IRREGULARLY-SHAPED RUBBLE, NEVER INTENDED TO BE SEEN, CONTRASTED WITH THE PROPERLY RENDERED WALL ON THE RIGHT (*RORY YOUNG*)

patented in 1794 and subsequently much used. John Nash was quick to exploit the robust properties of Parker's Roman Cement, patented in 1796, and this variant can still be found on some surviving Nash terraces. As with mastics, however, such materials are no longer commercially available.

ARTIFICIAL CEMENTS are formed from mechanically-combined limestone and clay, a process first successfully attempted in Britain in 1811. The best known is PORTLAND CEMENT, so called because of the alleged similarity of the finished product to Portland stone. This was patented by the Leeds bricklayer Joseph Aspdin in 1824, and although the reliability of his cement was poor, subsequent improvements made artificial cements extremely popular by the 1850s.

MAINTENANCE AND REPAIR: EXTERNAL FINISHES

a. Cement Renders

IF REPAIRS ARE NECESSARY, it is best to use a render *of the same basic formula and strength* as the render already on the wall. Most importantly, care must be taken to avoid hard and brittle cement-based mixes in the context of Georgian buildings. These renders are denser than original materials and are impervious to water; if a crack appears as the wall behind moves, or the render contracts through frost, incoming rain water is unable to evaporate out again through the impervious render, and moisture is trapped and condenses. A severe frost will cause this moisture to freeze and expand and, as a result, force the render off the wall. At the same time, moisture also seeps back into the vulnerable masonry behind, trying to find an easier route for evaporation; this prompts decay of the internal plasterwork through the action of harmful salts and causes patches of damp which may rot structural timberwork.

Remember, too, not to render Georgian walls which were never intended to be covered – except in instances where erosion due to severe weather conditions is a major problem. Georgian brickwork in particular is of great interest, providing a multitude of fascinating textures and colours; it is a great pity to hide such walls with a coat of modern render, particularly if this render is of an unsympathetic and ahistorical type such as the ubiquitous 'pebbledash' or 'Tyrolean' products.

The detrimental effect of modern, cement-rich renders on historic buildings is even more pronounced with the recently-fashionable fake stone and mineral coatings. These, being anchored with strong cement, can seriously damage the supporting structure – as well as exhibiting a tendency to fail and shed components onto passers-by. All of these treatments, if applied to historic houses, can substantially *depress*, rather than enhance, the value of your property.

b. Lime Render

Lime is produced simply by burning limestone in a kiln; the resultant 'quicklime' is then slaked with water to produce basic lime putty, which must be stored for at least two weeks before use. This is mixed with sand, and possibly other aggregates, to produce the 'coarse stuff' of mortars or renders, which must be mixed again ('knocked up') before final use.

Lime render is nearly always preferable for historic structures, in that, unlike modern, cement-rich mixes, it allows the wall to breathe. It is not difficult to obtain the basic ingredients: lime putty is widely available from a number of suppliers across the country; some of these are listed in Useful Addresses below, others can be found by asking your local Conservation Officer.

Try and ensure that your builder or craftsman is using the appropriate type of render, i.e. that the original composition and colour are matched with the new work as exactly as possible. (If the render itself is coloured, match up the new work using different coloured sands, and not artificial pigments, which will fade and discolour.) Remember that many builders will themselves need advice in repairing Georgian render, and particularly in finding the correct materials. Ask your builder to supply samples of proposed work which you can compare with the existing material, and also to provide a good range of different mixes. To test the relative strength of this new render, rub it with a nail when it is dry: it should scratch away at the same rate as the old material.

c. Stucco

THE STUCCOED CENTREPIECE OF BEDFORD SQUARE, LONDON

Stucco was generally applied in three coats, the first being thicker than the succeeding coats. Exact details of its application can be found in John Ashurst's guide (see Further Reading, below). The final application was flattened with a wood float and, as it began to set, was often incised to suggest ashlar.

Most stucco was intended to be painted (unless it was already self-coloured). Note, though, that earlier forms of the material were often colour-washed to mimic darker yellow, brown or grey stone. The light cream tones so prevalent today are more a mid-19th century development than truly characteristic of the 18th century. As the colours of painted stucco became lighter, so craftsmen also became more adept at giving flat stuccoed surfaces the appearance of both finely-cut ashlar and of venerable, weathered stone. Such weathering is now rarely found on Georgian facades; where it does exist, get a recommended craftsman to restore it sensitively.

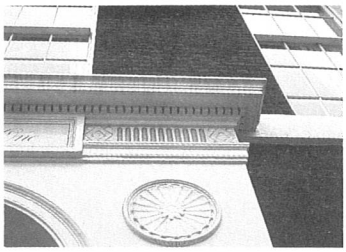
Stucco requires regular repainting every 3 or 4 years. A brilliant white is historically highly inappropriate, as is a textured paint. Westminster City Council recommend a specific cream colour – Buttermilk (BS4800/10C31) – for all the myriad stucco surfaces around their City. The Crown Estate in London recommend Crown Cream Finish for their stuccoed properties, whilst Hove Borough Council in Sussex suggest four additional variants of cream (BS4800/08B15, 10B15, 08C31, 08B17). In other parts of the country pale greens, blues and, in East Anglia, robust pinks are commonly used on all types of render – colours which are often based on the natural pigments in the soil. Clearly, then, the best solution is to investigate what the local requirements and traditions are. For more information on colours, see the Georgian Group's advisory leaflet no.4, *Paint Colour*.

A CLASSIC REGENCY STUCCOED TERRACE IN HOVE, SUSSEX

In repairing unpainted stucco, ensure that the materials used in the mix produce a finish of similar colour, texture and strength as on the existing wall. As with all types of render, each coat should be progressively weaker (i.e. with a higher proportion of lime and sand, and a lower proportion of cement) than the one below. And do make sure that any pattern of straight, incised lines which mimic ashlar joints is retained and followed. The damaged material should be cut back to the nearest straight 'joint' line.

d. Mouldings

It is important to retain original mouldings where they occur in door or window surrounds. Mouldings serve an important constructional purpose in throwing rainwater away from masonry, door and window surfaces. If they are removed, not only does the finished result look ugly, but the building becomes vulnerable to decay. If no examples survive, either for external or internal mouldings, have a look at your neighbours' houses for suitable, contemporary examples you can use.



Traditionally the tops of projecting mouldings were left uncovered, but today lead flashings are often added to give additional protection. If lead is used, make sure it does not leave any excessive ledges or protrusions. All metal used for repairs involving any type of render or plaster should always be non-rusting; countless structural problems have been caused by rusting iron cramps used to strengthen renders of the 18th and 19th centuries.

e. Limewash

If a colour wash or a protective coat is required, traditional limewashing is the best treament for external rendering, and indeed for brickwork and limestone masonry too. Limewash is flexible, allowing the wall to 'breathe' properly (i.e. moisture is able to evaporate out of the wall), and can be mixed with a wide variety of pigments. (For an authoritative explanation of the production of limewash, see the SPAB's relevant Information Sheet; the address is given below.)

Another common method of colouring rendered walls during the Georgian period was the application of a copperas wash. Copperas is still available from some outlets, and comes in three variants: green – ferrous sulphate, combined with lime to produce a characteristic golden, gingery wash, found throughout much of England; blue – copper sulphate, or occasionally verdigris, mixed to produce a variety of blue and green tints, sometimes called 'verdeters'; and white – toxic zinc sulphate, most often used as a wash for East Anglian white bricks.

PART OF THE WALL OF A WILTSHIRE FARMHOUSE, STILL WITH ITS TRADITIONAL COLOUR-WASHED LIME PLASTER (*RORY YOUNG*)

MAINTENANCE AND REPAIR: INTERNAL FINISHES

a. New Plaster

CRACKING OR BOWING PLASTERWORK is a common problem in old houses. Its presence has often been used as an excuse to remove all plaster ornament to create a more 'contemporary' space; in more recent years, original ornamental plaster has been ripped out and replaced with off-the-peg plaster casts – or, even worse, fibreglass panels – of little individual character and often of anachronistic or spurious design. Fibreglass sections also are prone to failure when joined with existing plasterwork. Reassuringly, however, the retention of original Georgian or Victorian plaster decoration has become fashionable again, and there has been a corresponding increase in the number of experts available to help with, or advise on, this process. It is now a simple operation to press a rubber 'squeeze' mould over the remaining ornament, to allow for the reinstatement of damaged or missing areas. Remember, in both aesthetic and financial terms, original work with a subtle patina of age is always better than a modern replacement.

Satisfactory repair inevitably requires a plasterer of proven ability. If you are uncertain about whom to select, either contact the Conservation Office of your local District or Borough Council, or failing that the SPAB, whose address is given below. And again, if there is no original plaster decoration left for you to copy, have a look at comparable interiors in your neighbours' houses.

b. Repair

When repairing ordinary plasterwork, there are a number of key prerequisites to bear in mind. Before you start, check for problems, such as damp or decay, which may have caused the bulging or crumbling in the first place. Note too that bulging ceiling plaster does not necessarily have to be taken down. Indeed any type of decay does not mean the wholesale removal of the original plasterwork. The affected areas can be secured by fastening the surface to the supporting timbers with galvanised or nonferrous screws and inserting lime putty behind

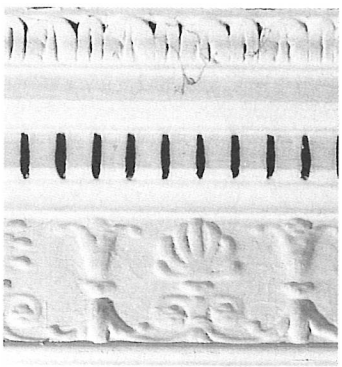
the plaster. The laths should be examined to check for rotting, loosening or bad spacing. Then, following the cleaning of the old plasterwork, a key can be created on the joists, preferably of brass screws and woven wire.

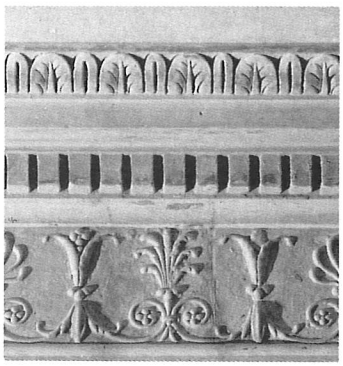
Repair methods and details are clearly delineated in John Ashurst's comprehensive English Heritage guide. Remember, for example, that whereas simple Plaster of Paris takes only eight days to dry out, modern substitutes such as acrylic resin and glass fibre will take almost twice as long. If it is necessary to repair or replicate large areas of decorative plasterwork, it is always best to consult a recognised expert. If you are unsure about which builder or specialist to chose, contact the Conservation Officer of your local District or Borough Council.

c. Plasterwork Finishes

It is important to bear in mind how the plasterwork is to be finished before you begin any repair. If you want a finish similar to those used during the Georgian period, the new plaster should, when dry, be painted with a sympathetic coating which allows the wall to 'breathe'. Silicate or non-vinyl paints can be used, providing they are not applied too thickly. Commercial emulsions or masonry paints, though, are extremely difficult to remove and clog the detail of the work.

Ornamental plasterwork was rarely intended to be painted more than one colour during the Georgian period – excepting, that is, areas with white relief. Multicoloured treatments under the guise of 'restoration' often look very clumsy, dark and heavy-handed; far better is a coat of limewash or traditional paint, possibly with some pale pigmentation.





THE CORNICE AND FRIEZE OF A HOUSE IN BATH OF 1779, BEFORE AND AFTER CLEANING WITH AN ALKALINE PASTE AND A WATER WASH (*COURTESY RENOVATE MAGAZINE/JULIE PHIPPS.*)

USEFUL ADDRESSES

British Cement Association, Wexham Springs, Slough, Berks. SL3 6PL

H J Chard & Sons, Feeder Road, Bristol, 0272 777681 (lime putty)

L Cornelisson & Son, 105 Gt Russell St, London WC1, 01 636 1045 (limewash pigments)

Hayles & Howe, 25 Picton St, Bristol BS6 5PZ, 0272 246673 (mouldings & scagliola)

Elizabeth Hirst, Loughton Hall Farmhouse, Loughton, Sleaford, Lincs NG34 0HE, 052 97449 (limewash and pigments)

Hodkin & Jones, Callywhite Lane, Dronfield, Sheffield S18 6XP, Tel: 0246 290888

Dunstan House, Sheepbridge, Chesterfield S41 9QD, 0246 455255

G. Jackson & Sons, Units 6 & 19, Mitcham Industrial Estate, Mitcham, Surrey CR4 2AJ (mouldings and restoration service)

The Lime and Flint Centre, Long Barn, Morestead, Winchester, Hampshire SO21 1LZ, 0962 713636 (traditional limewash and pigments; day courses for public and professionals on the application of mortar and render)

Potmolen, The Baptist Schoolhouse, Crockerton, Warminster, Wilts BA12 8BA, 0985 213960 (limewash, pigments and other finishes)

Rose of Jericho, P O Box 53, Kettering, Northants NN14 3BN, 0536 73439 (consultants and manufacturers of traditional mortars, plasters and coatings)

The Society for the Protection of Ancient Buildings, 37 Spital Square, London E1 6DY, 01 377 1644 (technical publications and advice)

Rory Young, 7 Park Street, Cirencester, Glos GL7 2BX (lime putty)

A list of lime suppliers can be found in John Ashurst's 1988 English Heritage guide (see below), while your local Conservation Officer should know of good nearby plasterers.

HOW *NOT* TO PAINT A STUCCOED TERRACE

FURTHER READING

John Ashurst, *Mortars, Plasters and Renders in Conservation* (Ecclesiastical Architects and Surveyors' Association, 1983)

John Ashurst, *Mortars, Plasters and Renders* (English Heritage, 1988)

George Bankhart, *The Art of the Plasterer* (1910)

Geoffery Beard, *Decorative Plasterwork in Great Britain* (1975)

John Fidler, "Save the Ceiling" in *Traditional Homes* (March 1986)

Philip Hughes, *The Need for Old Buildings to Breathe,* S.P.A.B. Information Sheet no.1

Frank Kelsall, "Liardet versus Adam" in *Architectural History* vol.27 (1984)

Frank Kelsall, "Stucco" in *Good and Proper Materials* (London Topographical Society, 1989)

William Miller, *Plastering Plain and Decorative* (1899)

Pargeting (Essex County Council, 1982)

Pegg and Stagg, *Plastering — A Craftsman's Encyclopaedia* (1976)

A.R. Powys, *The Repair of Ancient Buildings* (1929)

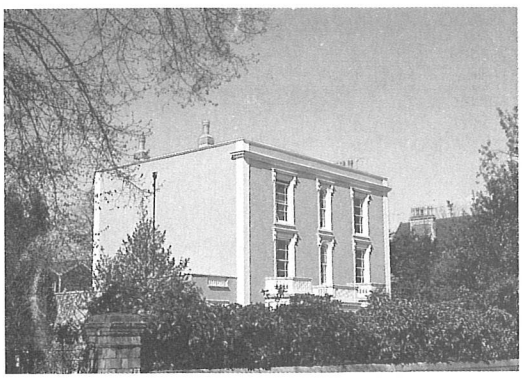
Arnold Root, "Decorative Plaster Design and Repair" in *Renovate* (March 1989)

Jane Schofield, *Basic Limewash,* SPAB Information Sheet no.1

Jane Schofield, "Plaster Mastery" in *Traditional Homes* (February 1988)

Andrew Townsend, "Roughcast for Historic Buildings" in *S.P.A.B. News* (Spring 1989)

Laurence Turner, *Decorative Plasterwork in Great Britain* (1927)



CLASSIC GEORGIAN USES OF STUCCO: ON THE LEFT, A HOUSE IN CLIFTON, BRISTOL; ON THE RIGHT, NASH'S ST ANDREW'S PLACE, PART OF THE REGENT'S PARK DEVELOPMENT OF THE 1820S

The Georgian Group exists to save Georgian buildings, townscapes, monuments, parks and gardens from destruction and disfigurement, and to stimulate public knowledge of Georgian architecture and Georgian taste. The Group offers a yearly programme of visits and educational events; applications for membership can be obtained from the Group office at 37 Spital Square, London E1 6DY, tel. 01 377 1722. The Group is a registered charity (no. 209934), and benefits from Covenants.

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